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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/708,066	02/06/2004	Roger Lam	FIS920030398US1	2065
29371	7590	08/03/2005	EXAMINER	
CANTOR COLBURN LLP 55 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002			CHERVINSKY, BORIS LEO	
			ART UNIT	PAPER NUMBER
			2835	

DATE MAILED: 08/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/708,066

Applicant(s)

LAM ET AL.

Examiner

Boris L. Chervinsky

Art Unit

2835

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application:
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

2. Claims 1, 4, 6, 8, 11, 14, 17 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Toy et al.

Toy discloses a semiconductor device packaging assembly, comprising: a chip module 10 mounted on a circuit board substrate 30; at least one integrated circuit chip 16 mounted on the substrate 10; a thermal interface layer 17 in contact with the at least one integrated circuit chip 16; a heat sink 20 in contact with the thermal interface layer 17 and at least one spacer member 47 in contact between said chip module 10 and the heat sink, wherein the at least one spacer member 47 is provided with an adhesive material 53, 53 on top and bottom surfaces thereof; the at least one spacer member 47 comprises a rigid material; the thermal interface layer 17 is the thermal interface pad and free of adhesive. The method steps of claims 8, 11 are necessitated by the device structure as disclosed by Toy et al.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 3, 5, 7, 10, 12, 13, 16, 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toy et al.

Toy discloses the claimed invention except specific materials such as phenolic resin for the spacer and epoxy as an adhesive. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use phenolic resins and epoxy, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Toy discloses the claimed invention except the size of thermal interface being 4 mil in compressed condition and 6 mil being in normal condition. This size depends on the properties of chosen material and as it is stated above the selection of known materials is within the general skill of a worker in the art therefore obvious.

5. Claims 2, 9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toy et al. in view of Boyer et al.

Toy discloses the claimed invention, as shown above, except the spacer being in cylindrical shape. Boyer discloses the spacer 32 of cylindrical shape placed between the heat sink and the substrate. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use cylindrical spacer as disclosed by Boyer et al. in the device disclosed by Toy et al. as to simplify the structure.

Response to Arguments

6. Applicant's arguments filed on 07/07/05 have been fully considered but they are not persuasive. The applicant's argument that the element 20 is not a heat sink and the

spacer is not disposed between the heat sink and the substrate is not convincing since the terminology used in the prior art is not necessarily to be matched with the terminology used in claims; the elements 20, 51 and 50 in combination can be considered as the heat sink because their primary function is to dissipate heat generated by the IC chip¹⁶. The applicant's argument that the element 47 is the sealing ring and not the spacer is not persuasive since the element 47 provides spacing between the heat sink 20 and the substrate 10 and again is the matter of terminology used.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Boris L. Chervinsky whose telephone number is 571-272-2039. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn D. Feild can be reached on 571-272-2800 ext. 35. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BORIS CHERVINSKY
PRIMARY EXAMINER

Boris L. Chervinsky
8/2/5